

**PCT**WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>6</sup> :</b> <b>A61K 9/20, C12Q 1/00, A61F 13/02</b>		<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 97/02811</b> <b>(43) International Publication Date:</b> 30 January 1997 (30.01.97)
<b>(21) International Application Number:</b> PCT/US96/11675 <b>(22) International Filing Date:</b> 11 July 1996 (11.07.96) <b>(30) Priority Data:</b> 08/501,664 12 July 1995 (12.07.95) US <b>(71) Applicant:</b> CYGNUS, INC. [US/US]; 400 Penobscot Drive, Redwood City, CA 94061 (US). <b>(72) Inventors:</b> ABRAHAM, William; 35600 Purcell Place, Fremont, CA 94536 (US). BERNER, Bret; 239 El Granada Boulevard, El Granada, CA 94018 (US). JOSHI, Priti, S.; 5919 Royal Ann Drive, San Jose, CA 95129 (US). PLANTE, Phillip, J.; 655 South Fair Oaks Avenue, M-116, Sunnyvale, CA 94086 (US). VIJAYAKUMAR, Prema; 43493 Southerland Way, Fremont, CA 94539 (US). <b>(74) Agent:</b> BOZICEVIC, Karl; Fish & Richardson P.C., Suite 100, 2200 Sand Hill Road, Menlo Park, CA 94025 (US).			<b>(81) Designated States:</b> AL, AM, AT, AU, AZ, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>
<b>(54) Title:</b> HYDROGEL PATCH			
<b>(57) Abstract</b> <p>A hydrogel patch is disclosed which is comprised of a polymeric material which forms a gel with water with the material being present in an amount of about 0.5 % to 40 % by weight based on the weight of the patch. Electrical conductivity of the water is increased by the addition of an electrolyte. The patch comprises an enzyme which is capable of catalyzing a reaction with a biomedically important molecule such as glucose. Glucose drawn into the patch undergoes a reaction with the aid of the enzyme and the hydrogen peroxide released flows through the electrical conductivity of the water and may react at an electrode surface to generate a signal related to the amount of glucose entering the patch. The patch is also preferably comprised of a buffer which maintains the pH of the patch in the range of from about 3 to 9, and may be further comprised of a cross-linking agent, a biocide, a humectant, and a surfactant. The patch is preferably in the form of a thin (5 <math>\mu</math>m - 50 mils), flat circular disc (0.5 to 10 cm<sup>2</sup> of area) which will conform to the contours of human skin and may have a non-woven fabric embedded therein and removable release liners on each surface.</p>			
			